



Characterization of NSTX divertor performance

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ST divertor physics

- ST edge transport - 2D fluid models of particle and heat flows for edge transport modeling (in progress)
- Heat flux scaling and core-edge power balance (in progress)
- Experiments being planned for FY 2003: divertor exhaust capabilities (working ions, impurities) and divertor regimes (attached, detached)

Present divertor diagnostics

- Spectroscopy (ORNL filterscopes, 1-D CCD camera, dedicated fast $D\alpha$ / $D\gamma$ - coming soon)
- 4-chord divertor bolometry
- IR cameras
- Tile Langmuir probes
- Calibrated neutral pressure gauges (U-Wash)
- Fast cameras (U-Hirosima, LANL)
- Coupons

Proposed enhancements to divertor diagnostics

- Dedicated divertor SPRED
 - divertor impurity production and exhaust
 - impurity distribution in divertor

- Dedicated high resolution high throughput visible imaging spectrometer (Keiser-like)
 - impurity density distribution in divertor
 - impurity temperature profile in divertor
 - impurity flow velocity
 - alternative use for helium spectroscopy edge profile meas'ts

Low carbon temperature and flow velocity are difficult but possible to measure!